

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Patent Number: 7,457,276 B2  
Issued: November 25, 2008  
Name of Patentee: Katsuaki Abe, et al.  
Title of Invention: TRANSMISSION AND RECEPTION SYSTEM,  
TRANSMISSION AND RECEPTION DEVICE, AND  
METHOD OF TRANSMISSION AND RECEPTION

**REQUEST FOR CERTIFICATE OF CORRECTION OF PATENT  
FOR PTO MISTAKE (37 C.F.R. § 1.322(a))**

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Attention: Certificate of Correction Branch

1. Attached is Form PTO/SB/44.
2. Correction of the Official Letters Patent is respectfully requested in view of the following text which appears correctly in the application file:

On the Cover Page, at item (75), "Yamamot" should read -- Yamamoto --, as indicated in the Declaration filed on November 13, 2003 and page 1 of the issued Corrected Filing Receipt.

At Column 17, claim 10, line 3, before said, insert -- (1) --, as indicated in claim 31, line 13, of the Amendment filed May 5, 2008.

At Column 17, claim 10, line 6, before said, insert -- (2) --, as indicated in claim 31, line 15, of the Amendment filed May 5, 2008.

At Column 17, claim 10, line 9, before said, insert -- (3) --, as indicated in claim 31, line 18, of the Amendment filed May 5, 2008.

At Column 17, claim 10, line 13, before said, insert -- (4) --, as indicated in claim 31, line 21, of the Amendment filed May 5, 2008.

At Column 19, claim 16, line 28, "Branches\_in" should read -- branches in --, as indicated in claim 38, line 23, of the Amendment filed May 5, 2008.

At Column 19, claim 16, line 55, "ofpuncturing" should read -- of puncturing --, as indicated in claim 38, line 41, of the Amendment filed May 5, 2008.

At Column 30, claim 32, line 9, "providinci" should read --providing --, as indicated in claim 54, line 9, of the Amendment filed May 5, 2008.

At Column 30, claim 32, line 10, "aenerated" should read --generated --, as indicated in claim 54, line 10, of the Amendment filed May 5, 2008.

3. Please send the Certificate to:

Name:	Lawrence E. Ashery
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Name of Assignee: Matsushita Electric Industrial Co., Ltd.

Assignment Recorded on: September 16, 1999

Reel: 010234

Frame: 0173

Respectfully submitted,

Lawrence E. Ashery, Reg. 34,515  
Attorney for Applicants

LEA/dmw

Enclosures: Form PTO/SB/44  
Supporting Documents

Dated: March 18, 2009

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384522

# Declaration and Power of Attorney For Patent Application

## English Language Declaration

COPY

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name,

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled

**TRANSMISSION AND RECEPTION SYSTEM, TRANSMISSION AND RECEPTION DEVICE, AND METHOD OF TRANSMISSION AND RECEPTION,**

the specification of which is attached hereto unless the following box is checked:

☒ was filed on June 16, 1999 as

United States Application Number or PCT International Application Number 09/335,315  
and was amended on \_\_\_\_\_ (if applicable).

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to patentability as defined in 37 CFR § 1.56.

I hereby claim foreign priority benefits under 35 U.S.C. §119(a)-(d) or § 365(b) of any foreign application(s) for patent or inventor's certificate, or § 365(a) of any PCT International application which designated at least one country other than the United States, listed below and have also identified below by checking the box, any foreign application for patent or inventor's certificate, or PCT International application having a filing date before that of the application on which priority is claimed:

Prior Foreign Application(s)

Priority Not Claimed

10-167868

Japan

June 16, 1998

(Number)

(Country)

(Day/Month/Year Filed)

☐

(Number)

(Country)

(Day/Month/Year Filed)

☐

I hereby claim the benefit under 35 U.S.C. § 119(e) of any United States provisional application(s) listed below.

(Application Number)

(Filing Date)

(Application Number)

(Filing Date)

I hereby claim the benefit under 35 U.S.C. § 120 of any United States application(s), or 365(c) of any PCT International application designating the United States, listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States or PCT International application in the manner provided by the first paragraph of 35 U.S.C. § 112, I acknowledge the duty to disclose information which is material to patentability as defined in 37 CFR § 1.56 which became available between the filing date of the prior application and the national or PCT international filing date of this application:

COPY

(Application Number)

(Filing Date)

(Status - patented, pending, abandoned)

(Application Number)

(Filing Date)

(Status - patented, pending, abandoned)

POWER OF ATTORNEY: As a named inventor, I hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and transact all business in the Patent and Trademark Office connected therewith:

Paul F. Prestia	Reg. No. 23,031	Lawrence E. Ashery	Reg. No. 34,515	Mark J. Marcelli	Reg. No. 36,593
Allan Ratner	Reg. No. 19,717	Christopher R. Lewis	Reg. No. 36,201	Joshua L. Cohen	Reg. No. 38,040
Andrew L. Ney	Reg. No. 20,300	Robert L. Andersen	Reg. No. 25,771	Christopher J. Dervishian	Reg. No. 42,480
Kenneth N. Nigon	Reg. No. 31,549	Daniel N. Calder	Reg. No. 27,424	Jack J. Jankovitz	Reg. No. 42,690
Kevin R. Casey	Reg. No. 32,117	Louis W. Beardell, Jr.	Reg. No. 40,506		
Benjamin E. Leace	Reg. No. 33,412	Jacques L. Etkowicz	Reg. No. 41,738		
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Address all telephone calls to: Lawrence E. Ashery at (610) 407-0700.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Full name of sole or first inventor (given name, family name) Katsuaki Abe

Inventor's signature

Katsuaki Abe

Date July 30, 1999

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Citizenship Japanese

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Makoto Hasegawa

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Additional inventors are being named on separately numbered sheets attached hereto.

COPY

Full name of third joint inventor, if any (given name, family name) Naoyuki YamamotoThird inventor's signature Naoyuki Yamamoto Date July 30, 1999Residence Kanagawa, JapanCitizenship JapanesePost Office Address 170-1-207, Kamihoshikawacho, Hodagaya-ku  
Yokohama-shi, Kanagawa, 240-0042 Japan

Full name of fourth joint inventor, if any (given name, family name) \_\_\_\_\_

Fourth inventor's signature \_\_\_\_\_ Date \_\_\_\_\_

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Citizenship \_\_\_\_\_

Post Office Address \_\_\_\_\_  
\_\_\_\_\_

Full name of fifth joint inventor, if any (given name, family name) \_\_\_\_\_

Fifth inventor's signature \_\_\_\_\_ Date \_\_\_\_\_

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Citizenship \_\_\_\_\_

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Full name of sixth joint inventor, if any (given name, family name) \_\_\_\_\_

Sixth inventor's signature \_\_\_\_\_ Date \_\_\_\_\_

Residence \_\_\_\_\_

Citizenship \_\_\_\_\_

Post Office Address \_\_\_\_\_  
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Full name of seventh joint inventor, if any (given name, family name) \_\_\_\_\_

Seventh inventor's signature \_\_\_\_\_ Date \_\_\_\_\_

Residence \_\_\_\_\_

Citizenship \_\_\_\_\_

Post Office Address \_\_\_\_\_  
\_\_\_\_\_

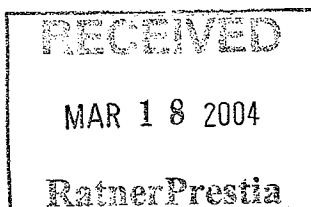


## UNITED STATES PATENT AND TRADEMARK OFFICE

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APPL NO.	FILING OR 371 (c) DATE	ART UNIT	FIL FEE REC'D	ATTY. DOCKET NO	DRAWINGS	TOT CLMS	IND CLMS
10/712,613	11/13/2003	2681	2502	MAT-7510US1	8	35	20

23122  
 RATNERPRESTIA  
 P O BOX 980  
 VALLEY FORGE, PA 19482-0980



**CONFIRMATION NO. 9000**  
**CORRECTED FILING RECEIPT**



\*OC000000012107656\*

Date Mailed: 03/15/2004

Receipt is acknowledged of this regular Patent Application. It will be considered in its order and you will be notified as to the results of the examination. Be sure to provide the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION when inquiring about this application. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. If an error is noted on this Filing Receipt, please write to the Office of Initial Patent Examination's Filing Receipt Corrections, facsimile number 703-746-9195. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections (if appropriate).

#### Applicant(s)

Katsuaki Abe, Kanagawa, JAPAN;  
 Makoto Hasegawa, Tokyo, JAPAN;  
 Naoyuki Yamamoto, Kanagawa, JAPAN;

#### Domestic Priority data as claimed by applicant

This application is a CON of 09/335,315 06/16/1999 PAT 6,693,889

#### Foreign Applications

JAPAN 10 167868 06/16/1998

If Required, Foreign Filing License Granted: 02/11/2004

Projected Publication Date: 05/20/2004

Non-Publication Request: No

Early Publication Request: No

#### Title

Transmission and reception system, transmission and reception device, and method of transmission and reception

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KS

Application No.: 10/712,613  
Amendment Dated: May 5, 2008  
Reply to Office Action of: April 4, 2008

MAT-7510US1

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(1) said demodulated data output by said reception / demodulation means are digital values quantized with a predetermined number of bits;

(2) said depuncturing carried out by said first depuncturing means includes inserting a middle value between two digital values corresponding to a mark and a space;

(3) said combining by said first combining means is a process of addition of a digital value to said series of depunctured data output by said first depuncturing means, symbol by symbol in a unit of a block; and

(4) said first convolutional decoding means defines Viterbi soft quantization means for executing a Viterbi soft decision.

Patent  
Claim 10

✓ 31. (Previously Presented) The transmission and reception system according to claim 27, wherein:

➔ (1) said demodulated data output by said reception / demodulation means are digital values quantized with a predetermined number of bits;

➔ (2) said depuncturing carried out by said first depuncturing means includes inserting a middle value between two digital values corresponding to a mark and a space;

➔ (3) said combining by said first combining means is a process of addition of a digital value to said series of depunctured data output by said first depuncturing means, symbol by symbol in a unit of a block; and

➔ (4) said first convolutional decoding means defines Viterbi soft quantization means for executing a Viterbi soft decision.

✓ 32. (Previously Presented) The transmission and reception system according to claim 2, wherein puncturing locations in said puncturing patterns generated by said first multiple puncturing pattern generation means are set in a manner not to overlap among said patterns.

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as said first reference matrix generation means, and a second matrix conversion means having the same function as said first matrix conversion means with relation to a further reference matrix generated by said second reference matrix generation means.

Patent  
Claim 16 ✓38. (Previously Presented) A transmission and reception system comprising:

a transmission device including:

(1) convolutional coding means for convolution-coding input data, and outputting convolution-coded data;

(2) first multiple puncturing pattern generation means for generating a plural form of puncturing patterns having an identical puncturing rate, but having respectively different puncturing block patterns, said first multiple puncturing pattern generation means providing a reference matrix from which are generated said puncturing patterns;

(3) first puncturing means for puncturing convolution-coded data output by said convolutional coding means by using each of said plural form of puncturing patterns supplied by said first multiple puncturing pattern generation means, and outputting a plural form of punctured data;

(4) modulation / transmission means for modulating and transmitting, said each form of punctured data output by said first puncturing means by using each of branches, as transmission data, and

a receiving device including:

(1) reception / demodulation means for receiving and demodulating each of the signals transmitted by said transmission device by using each of branches, and outputting demodulated data;



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→ (2) reception level memory means for measuring a reception level at every branches\_in said reception / demodulation means, and storing a result of measurement;

(3) second multiple puncturing pattern generation means for generating a plural form of puncturing patterns, which are identical to the puncturing patterns generated by said first multiple puncturing pattern generation means;

(4) first depuncturing means for depuncturing each of demodulated data in quantity corresponding to the number of said branches output from said reception / demodulation means by using the puncturing patterns supplied by said second multiple puncturing pattern generation means, and outputting depunctured data;

(5) weighting / combining means for i) weighing and ii) then combining the depunctured data output by said first depuncturing means according to the reception level for each of said reception level stored in said reception level memory means, and outputting a result of combining; and

(6) first convolutional decoding means for convolution-decoding said result of combining, and outputting decoded data,

→ wherein said time-diversity transmission and reception system executes transmission and reception of a plurality of different error-correction code words, as individual branch data, obtained by puncturing and convolution-coding identical series of information data with the plurality of different forms of puncturing patterns, and

said first multiple puncturing pattern generation means comprises a first reference matrix generation means for generating a reference matrix for one of said puncturing patterns, and a first matrix conversion means for outputting a different puncturing pattern for each one of a plurality of branches by converting at least one of rows, columns and elements of said reference matrix.

✓ 39. (Previously Presented) A transmission and reception system, comprising a transmission device and a receiving device, said transmission device comprising:

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(1) reception / demodulation means for receiving and demodulating a signal transmitted by a transmission source via a communication pathway, and outputting demodulated data, said transmission source providing a reference matrix from which are generated puncturing patterns;

(2) depuncturing means for depuncturing said demodulated data using puncturing patterns of said transmission source, and outputting a plural variety of series of depunctured data;

(3) combining means for combining said series of depunctured data, and outputting a result of combining; and

(4) convolutional decoding means for convolution-decoding said result of combining, and outputting a decoded data.

Patent  
Claim 32 / 54. (Currently Amended) A receiving device comprising:

(1) reception / demodulation means for receiving and demodulating each of the signals transmitted by ~~said a transmission device source~~ by using each of branches, and outputting demodulated data;

(2) ~~second-first~~ multiple puncturing pattern generation means for generating a plural form of puncturing patterns, ~~which are identical to the puncturing patterns generated by said first multiple puncturing pattern generation means~~ having an identical rate, but having respectively different puncturing block patterns, said first multiple puncturing pattern generation means providing a reference matrix from which said puncturing patterns are generated;

(3) first depuncturing means for depuncturing each of demodulated data in quantity corresponding to the number of said branches output from said reception / demodulation means by using the puncturing patterns supplied by said ~~second-first~~ multiple puncturing pattern generation means, and outputting depunctured data;

(4) first combining means for combining each of depunctured data output by said first depuncturing means, symbol by symbol in a unit of block, and outputting a result of combining; and

**UNITED STATES PATENT AND TRADEMARK OFFICE**  
**CERTIFICATE OF CORRECTION**

PATENT NO: 7,457,276 B2  
APPLICATION NO.: 10/712,613  
DATED: NOVEMBER 25, 2008  
INVENTOR(S): KATSUAKI ABE, ET AL.

Page 1 of 1

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

Cover Page,  
Item (75), "Yamamot" should read -- Yamamoto --.

Column 17,  
Claim 10, line 3, before said, insert -- (1) --.

Claim 10, line 6, before said, insert -- (2) --.

Claim 10, line 9, before said, insert -- (3) --.

Claim 10, line 13, before said, insert -- (4) --.

Column 19  
Claim 16, line 28, "Branches\_in" should read -- branches in --.  
Claim 16, line 55, "ofpuncturing" should read -- of puncturing --.

Column 30  
Claim 32, line 9, "providinci" should read --providing --.  
Claim 32, line 10, "aenerated" should read --generated --.

Mailing Address of Sender:

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This collection of information is required by 37 CFR 1.322, 1.323 and 1.324. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1.0 hour to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Attention Certificate of Corrections Branch, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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